

conclusions as to the coat-colours of horses and cattle, which will be new to many interested in this subject. It appears that both these puzzling cases can be explained by the hypothesis usually known as that of "multiple allelomorphs." In each five coat colours will breed true, and each pair of these pure strains yields a simple heterozygote, so that there must be five alternative forms capable of natural replacement. (e) Coupling is dealt with but slightly; the chapter is chiefly devoted to sex-limitation, and no reference is made to the extensive investigations of the American fruit-fly (*Drosophila*), or to the numerical series of partial coupling found by Bateson and Punnett. (f) "The production of similar or closely similar effects by different materials" treats of the Swedish experiments on the colours of wheat and oats, which exhibit a phenomenon much the same as that discussed under (b). The combination of cumulative factors affecting the same measureable quantity is deferred to the last two chapters. These are of especial interest to the practical man, as also to the eugenicist. The data consist principally of the progress made in Denmark and Holland in milk and butter production, but the moral is of universal application: "The average yield of wheat in Britain is about 32 bushels to the acre; it might be raised to 40, or even 50. For every day by which the life of a variety of wheat is shortened between seed-time and harvest, the wheat-growing area in Canada reaches 50 or 60 miles further northwards." Would less advantage accrue from a similar improvement of our statesmen, employers, workmen, and men of science?

R. A. F.

Walcott, Charles D. *Evidences of Primitive Life*. From the Smithsonian Report for 1915. Washington, U.S.A.; pp. 395-408.

In this pamphlet Dr. Walcott, of the American Geological Survey, gives an account of his most interesting researches on the Cambrian and pre-Cambrian rocks of North America. These have been the objects of life-long study by Dr. Walcott, and he has discovered fossiliferous beds in the Rocky Mountains belonging to the Middle and Lower Cambrian which throw a startling light on the variety and complexity attained by marine invertebrate life at that time. Dr. Walcott's discoveries prove up to the hilt the truth of Darwin's statement, "Of the book of life we have only the last volume." At the same time it must be remembered that Dr. Walcott is primarily a geologist, and his conclusions as to the affinities of the forms which he describes are to be received with caution. It is exceedingly unlikely that Phyllopoda (or, as he terms them, Branchipoda) have been the ancestors of the Trilobita. The Trilobita, the anatomy of which have been described by Beecher, are the most primitive Arthropoda known, inasmuch as the appendages behind the mouth are all alike and form a continuous series, those designated as jaws differing only slightly from the rest, whereas in Branchipoda (which may well have been derived from Trilobita) there are sharply differentiated jaws. The impressions referred to as remains of Holothuroidea are of doubtful import; they resemble no living Holothuroidea known. It must, however, be admitted that Dr. Walcott's pioneering researches have produced material which might well absorb the activities of many zoologists for a decade if they were to be properly worked up and elucidated.

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